cently when usage information enabled the carrier to defend itself against a multimillion-dollar lawsuit from AT&T. The interexchange carrier claimed Ameritech had overcharged for three-way calls. In the past, the local carrier would have had no means of challenging the IXC's claims, but usage data indicated that those claims were inflated.

To support their modeling and on-line analytical capabilities, many carriers also have loaded demographic data—often at the household level—into their warehouses. Users, however, say internal information has much more predictive value.

"We haven't found much relationship to demographic variables," says Farler. "For example, there is no relationship between income and anything."

Christine Wright, vice president of database services for Matrixx Marketing, agrees that demographic information is of little value in segmenting customers, but she says it is useful in developing telemarketing scripts targeting different types of customers.

BellSouth's Bennett says demographic data has been more useful in the business market than for residential applications. Vendor-supplied data might reveal, for example, that purchase decisions for a chain of restaurants are made at corporate headquarters.

GTE has used demographics to corroborate information learned from internal analysis, says Forringer. The carrier built a database of small office/home office users based on information contained in its own systems, then verified the results by comparing them with data from an outside supplier.

What new developments will occur in data warehousing moving forward?

Forringer lists several areas he wants to analyze. One area would look at groups of customers that behave similarly and link them to primary market research to better understand how to communicate with different behavioral groups. Another area would study how segments differ in response to different types of communication and measure the market response to GTE's and competitors' actions. U S West's Farler says she'd like to keep closer tabs on the responses to campaigns, including those who made inquiries but did not purchase a service.

An area that is beginning to get attention is text mining. Like data mining, this would involve looking for patterns in information—but the input would be customer service records and other sources that are not easily quantified. A prerequisite for text mining will be to develop standard terminology for customer service representatives to use in describing their interactions with callers.

W.H. Inmon, author of "Building the Data Warehouse," the book many credit with helping to create the data warehousing boom, says companies that have built data warehouses will turn their attention next to managing those warehouses. Inmon has founded Pine Cone Systems to provide tools that will enable users to apportion data warehousing costs to various departments within an organization.

There also may be an opportunity for intelligent agents that would automatically deliver vital information to key executives without requiring the executives to generate an inquiry, says David Newman, senior manager for KPMG's data warehousing practice.

Clearly, data warehousing is becoming entrenched in carriers' business operations. Bell Atlantic's Ingalls describes the technology as "table stakes" for playing in the new competitive market. "If you look at our competitors now, AT&T, MCI and Sprint have been at this game for some time," he says. "Using data warehousing and data mining is how they've operated. This will be one of the assets we'll have to develop. Data warehousing will be critical to being successful."

Churn control

Several firms are offering wireless carriers data analysis models that they have developed to help prevent churn.

Mercury Cellular in Lake Charles, La., and GTE Wireless in Tampa are using a system developed by GTE TSI to help predict which customers are likely to switch wireless service providers, according to Mike O'Brien, GTE TSI's product manager for Churn Manager.

The Churn Manager system collects data from switches, customer service and billing systems, and activation systems. Results are presented to customer service representatives through a graphical user interface, which indicates the probability that a particular customer will churn, how valuable that customer is and the customer's credit class. For customers likely to churn, the system can suggest an action such as an alternative rate plan, which the carrier can customize.

The system also can be used to create lists of customers to call for specific campaigns. A carrier wishing to convert callers from analog to digital service might target a customer with high revenue and feature usage who carries an old phone.

Cincinnati Bell Information Systems and fellow Cincinnati Bell subsidiary Matrixx Marketing have teamed to offer another churn management system.

"A customer likely to churn in three months is different from one who'll churn after one year," says Christine Wright, vice president of database services for Matrixx Marketing. Those in the first group primarily drop out for financial reasons, while the second group is more rate plan-oriented.

Using information from billing systems, the CBIS/Matrixx product segments customers into four groups, including those who are primarily price-driven, hassle-free or service-oriented, says Wright. The final group evaluates all criteria equally.

There are two components of price that drive churn, according to Wright—the number of free minutes and the peak price per minute. Matrixx works with customers to pilot and test offers to address these concerns.

Churn management software is also available from Lightbridge and Coral Systems.—*JE*

APPENDIX B

Section 222(c), entitled "Confidentiality of Customer Proprietary Network Information," allows carriers to access, use or disclose CPNI with respect to the provision of a telecommunications service from which such information is derived or services necessary or used in the provision of such telecommunications service. No customer approval is required to use information for these purposes. Beyond Section 222(c)(1)(A) and (B) purposes, customer approval (or operation of law) is necessary.

As is obvious from the statutory language, the statute does not specify the type of "approval" necessary to allow for broad CPNI use or the means required to be utilized to obtain such approval. It is clear, under standard rules of statutory construction, that a written consent requirement should not be read into the provisions of Section 222(c)(1), in light of the express mention of a writing in Section 222(c)(2).[1] The absence of such an expression in (c)(1) is a patent indication of Congress' intent not to impose such a requirement with respect to that statutory provision.[2]

As to affirmative consents in general, an expanded view of the legislative history of Section 222 patently demonstrates that such an approach was also rejected. Furthermore, as pointed out by U S WEST in earlier filings, an expanded legislative history of Section 222(c) demonstrates that it was the last in a number of iterations of House Bills initiated by Representative Markey over a period of legislative sessions. The two bills addressing CPNI that immediately preceded the language in H.R. 1555 were H.R. 3432 and H.R. 3626. H.R. 3432 pertained only to LECs and required "affirmative request[s]" to use CPNI broadly. H.R. 3626 changed the scope of the statutory provision to all common carriers and changed the standard for broad use to "approval." Clearly, the deletion of the word "affirmative" in the bill immediately preceding the language chosen for inclusion in H.R. 1555 is significant. It demonstrates a clear Congressional intent that the approval requirements of Section 222(c)(1) have a different aspect than the carrier obligation outlined in Section 222(c)(2) and that an affirmative consent requirement was rejected with respect to CPNI access and use for a statutory standard that allows for a more benign implementation.

It is obvious that Congress mandated nothing "affirmative" by way of customer approval in Section 222. Thus, Congress could certainly not have meant to erect a material and substantial barrier to a business' use of its internal information in a manner that verges on infringing on two fundamental constitutional rights, i.e., property rights and speech rights. A Commission conclusion to the contrary would be unlawful.

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[1] The latter section requires a carrier to provide CPNI to any entity designated by the customer in writing. In this regard, the requirement is a codification of the Commission's existing CPNI rules.

[2] A sound rule of statutory construction holds that an express statutory requirement in one place, contrasted with statutory silence elsewhere, shows an intent to confine the requirement to the specified instance. See Field v. Mans, 116 S. Ct. 437, 442 (1995). See also Gozlon-Peretz v. United States, 498 U.S. 395, 404 (1991); American Civil Liberties Union v. Reno, 929 F. Supp 824, 850 (E.D.PA. 1996).